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-- SQL PORTFOLIO PROJECT

-- METHODOLOGY:
-- 1.DATA PROCESSING/DATA CLEANING(Import Data, Remove Duplicates, Handle NULL values)
-- 2.EXPLORATORY DATA ANALYSIS

-- DATA PROCESSING/DATA CLEANING:

-- Create Database and Import data
CREATE DATABASE Superstore;
USE Superstore;

-- Remove Duplicates
WITH Duplicates AS(SELECT *, ROW_NUMBER() OVER (PARTITION BY OrderID, ProductID
ORDER BY RowID) AS RowNum
FROM OrderDetails)
DELETE
FROM Duplicates
WHERE RowNum >1;

-- Observation: 8 Duplicates found
-- Action: Delete Duplicates

-- Handling Null values
SELECT*
FROM Orderdetails
WHERE Profit is NULL;
-- Observation: 1 Null found

UPDATE OrderDetails
SET Profit = (SELECT AVG(Profit)
FROM Orderdetails
WHERE Profit >=0)
WHERE Profit is Null;

-- Action: NULL filled with Average of Profit

SELECT*
FROM Orderdetails
WHERE Profit < 0;

-- Obseration: Negative Profit found which is Loss

-- EXPLORATORY DATA ANALYSIS

-- Sales by Product Category
SELECT
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    Category,
    SUM(Sales) AS TotalSales
FROM OrderDetails
GROUP BY Category
ORDER BY TotalSales DESC;

-- Best-selling Products by Revenue
SELECT TOP 5
    ProductName,
    SUM(Sales) AS Revenue
FROM OrderDetails
GROUP BY ProductName
ORDER BY Revenue DESC;

-- Total Profit
SELECT
    SUM(Profit) AS TotalProfit
FROM OrderDetails
WHERE Profit >=0; -- Total Profit $442,187

-- Total Loss
SELECT
    SUM(Profit) AS TotalLoss
FROM OrderDetails
WHERE Profit <=0 -- Total Loss $155,699.22

-- Net Profit
SELECT
    SUM(Profit) AS NetProfit
FROM OrderDetails -- Net Profit $286,488.29

-- Profit by Product Category
SELECT
    Category,
    SUM(Profit) AS TotalProfit
FROM OrderDetails
WHERE Profit >=0
GROUP BY Category
ORDER BY TotalProfit DESC;

-- Total Sales over time
SELECT
    SUM(Sales) AS TotalSales
FROM OrderDetails;

-- Total Quantity sold Over time
SELECT
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SUM(Quantity) AS TotalQuantity
FROM OrderDetails;

-- which months or quarters had the highest and lowest sales?
SELECT TOP 1
    DATEPART(MONTH, OrderDate) AS SalesMonth,
    SUM(Sales) AS TotalSales
FROM OrderDetails
GROUP BY DATEPART(MONTH, OrderDate)
ORDER BY TotalSales DESC; -- Highest Sales Month

SELECT TOP 1
    DATEPART(MONTH, OrderDate) AS SalesMonth,
    SUM(Sales) AS TotalSales
FROM OrderDetails
GROUP BY MONTH(OrderDate)
ORDER BY TotalSales ASC; -- Lowest Sales Month

SELECT
    DATEPART(QUARTER, OrderDate) AS SalesQuarter,
    SUM(Sales) AS TotalQuarterlySales
FROM OrderDetails
GROUP BY
    DATEPART(QUARTER, OrderDate)
ORDER BY
    SalesQuarter DESC; -- Highest & Lowest Sales Quarter

-- Average Order Value
SELECT
    SUM(Sales)/COUNT(DISTINCT(OrderID)) AS AverageOrderValue
FROM OrderDetails;

-- Top Customers by Revenue
SELECT TOP 5
    CustomerName,
    SUM(sales) AS Revenue
FROM OrderDetails
GROUP BY CustomerName
ORDER BY Revenue DESC;

-- Average purchase frequency by Customer
SELECT
    COUNT(DISTINCT(OrderID))/ COUNT(DISTINCT(CustomerID)) AS
        AveragePurchaseFrequency
FROM OrderDetails;

-- which customer segment spends most
SELECT TOP 1
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    Segment,
    SUM(Sales) AS TotalSpend
FROM OrderDetails
GROUP BY Segment
ORDER BY TotalSpend DESC;

-- Which Regions generates the most Sales
SELECT Top 2
    Region,
    SUM(Sales) AS Sales
FROM OrderDetails
GROUP BY Region
ORDER BY Sales DESC;

-- Sales performance across City
SELECT Top 5
    City,
    SUM(Sales) AS Sales
FROM OrderDetails
GROUP BY City
ORDER BY Sales DESC;
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